

What is claimed is:

1. A laser light source comprising:

Sub Bc2  
light;

a semiconductor light-emitting device for emitting

5 an external resonator including a wavelength selector  
which selects a wavelength of said light;

wherein a stripe is formed in said semiconductor  
light-emitting device so that it is oblique to one end facet,  
(which does not constitute said external resonator) of the two  
cleaved end facets of said semiconductor light-emitting device;  
and

said one end facet of said semiconductor light-emitting  
device has a coating which becomes an antireflection coating  
with respect to the selected wavelength.

15 2. The laser light source as set forth in claim 1,  
wherein

said wavelength selector comprises two wavelength  
selectors, disposed on both sides of said semiconductor  
light-emitting device one by one, and having a function of  
20 returning the wavelength-selected light to said semiconductor  
light-emitting device; and

said external resonator is constituted by said two  
wavelength selectors..

25 3. The laser light source as set forth in claim 1,  
wherein

said wavelength selector has a function of returning

the wavelength-selected light to said semiconductor light-emitting device; and

5 said external resonator is constituted by said wavelength selector and an end facet, on the opposite side from said wavelength selector, of said semiconductor light-emitting device.

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4. The laser light source as set forth in claim 3, wherein said stripe has a bent portion and is formed perpendicular to said end facet, on the opposite side from said wavelength selector, of said semiconductor light-emitting device.

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5. The laser light source as set forth in claim 1, wherein an optical waveguide device is coupled to said semiconductor light-emitting device or wavelength selector.

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6. The laser light source as set forth in claim 2, wherein an optical waveguide device is coupled to said semiconductor light-emitting device or wavelength selector.

7. The laser light source as set forth in claim 3, wherein an optical waveguide device is coupled to said semiconductor light-emitting device or wavelength selector.

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8. The laser light source as set forth in claim 4, wherein an optical waveguide device is coupled to said semiconductor light-emitting device or wavelength selector.

9. The laser light source as set forth in claim 5, wherein

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said wavelength selector has a function of returning the wavelength-selected light to said semiconductor

light-emitting device and is disposed on one side of said semiconductor light-emitting device;

said optical waveguide device is disposed on the other side of said semiconductor light-emitting device; and

5        said external resonator is constituted by an end facet, on the opposite side from said semiconductor light-emitting device, of said optical waveguide device, and said wavelength selector.

10. The laser light source as set forth in claim 5, wherein said optical waveguide device has a wavelength converting function.

11. The laser light source as set forth in claim 9, wherein said optical waveguide device has a wavelength converting function.

15        12. The laser light source as set forth in claim 5, wherein the width of the wavelength selected by said wavelength selector is nearly the same as an allowable phase-matching wavelength width for wavelength conversion which is performed by said optical waveguide device having a wavelength converting function.

20        13. The laser light source as set forth in claim 9, wherein the width of the wavelength selected by said wavelength selector is nearly the same as an allowable phase-matching wavelength width for wavelength conversion which is performed  
25        by said optical waveguide device having a wavelength converting function.

14. The laser light source as set forth in claim 11,  
wherein the width of the wavelength selected by said wavelength  
selector is nearly the same as an allowable phase-matching  
wavelength width for wavelength conversion which is performed  
by said optical waveguide device having a wavelength converting  
function.

15. The laser light source as set forth in claim 5,  
wherein said optical waveguide device is disposed in said external  
resonator.

16. The laser light source as set forth in claim 9,  
wherein said optical waveguide device is disposed in said external  
resonator.

17. The laser light source as set forth in claim 11,  
wherein said optical waveguide device is disposed in said external  
resonator.

18. The laser light source as set forth in claim 12,  
wherein said optical waveguide device is disposed in said external  
resonator.

19. The laser light source as set forth in claim 15,  
wherein an end facet of said optical waveguide device that  
constitutes said external resonator is cut perpendicular to a  
direction where an optical waveguide of said optical waveguide  
device extends.

20. The laser light source as set forth in claim 15,  
wherein an end facet of said optical waveguide device that does  
not constitute said external resonator is cut oblique to a

direction where an optical waveguide of said optical waveguide device extends.

B1 21. The laser light source as set forth in claim 5, wherein said optical waveguide is coupled directly to said semiconductor light-emitting device or wavelength selector.

5 22. The laser light source as set forth in claim 9, wherein said optical waveguide is coupled directly to said semiconductor light-emitting device or wavelength selector.

23. The laser light source as set forth in claim 11, wherein said optical waveguide is coupled directly to said semiconductor light-emitting device or wavelength selector.

24. The laser light source as set forth in claim 12, wherein said optical waveguide is coupled directly to said semiconductor light-emitting device or wavelength selector.

25. The laser light source as set forth in claim 15, wherein said optical waveguide is coupled directly to said semiconductor light-emitting device or wavelength selector.

26. The laser light source as set forth in claim 19, wherein said optical waveguide is coupled directly to said semiconductor light-emitting device or wavelength selector.

27. The laser light source as set forth in claim 20, wherein said optical waveguide is coupled directly to said semiconductor light-emitting device or wavelength selector.

28. The laser light source as set forth in claim 1, wherein said wavelength selector is a waveguide type wavelength selector having a reflection Bragg grating in an optical waveguide

portion.

29. The laser light source as set forth in claim 28, wherein said wavelength selector and said semiconductor light-emitting device are coupled directly with each other.

5 30. The laser light source as set forth in claim 1, wherein

said external resonator is constituted by a mirror, disposed to face one end facet of said semiconductor light-emitting device, and the other end facet of said semiconductor light-emitting device; and

10 said wavelength selector comprises a narrow-band pass filter disposed between said mirror and said semiconductor light-emitting device.

15 31. The laser light source as set forth in claim 1, further comprising a drive circuit that drives said semiconductor light-emitting device with high-frequency superposition.

32. The laser light source as set forth in claim 30, further comprising a drive circuit that drives said semiconductor light-emitting device with high-frequency superposition.

20 33. The laser light source as set forth in claim 1, wherein

a longitudinal mode width of said external resonator is less than the width of the wavelength selected by said wavelength selector; and

25 said laser light source is operated in a multi-longitudinal mode which is within the width of said selected

wavelength by said high-frequency superposition.

34. The laser light source as set forth in claim 30,  
wherein

a longitudinal mode width of said external resonator  
is less than the width of the wavelength selected by said wavelength  
selector; and

said laser light source is operated in a  
multi-longitudinal mode which is within the width of said selected  
wavelength by said high-frequency superposition.

35. The laser light source as set forth in claim 31,  
wherein

a longitudinal mode width of said external resonator  
is less than the width of the wavelength selected by said wavelength  
selector; and

said laser light source is operated in a  
multi-longitudinal mode which is within the width of said selected  
wavelength by said high-frequency superposition.

36. The laser light source as set forth in any one  
of claims 1-35, further comprising temperature control means  
for maintaining the devices, which constitute said external  
resonator, at a predetermined temperature.